Calculus 221, Chapter 9.6 Summary ~ things you should know

(for sections 9.1–9.5 see .)

Important concepts:

limits: For any positive real number $n > 0$, $\lim\limits_{x \to \infty} x^n = \infty$.

For any positive real number $n > 0$, $\lim\limits_{x \to \infty} \dfrac{1}{x^n} = 0$.

For any real number $k > 0$, $\lim\limits_{x \to \infty} \dfrac{1}{e^{kx}} = 0$.

For any constant real number c, $\lim\limits_{x \to \infty} c = c$.

area under an "infinite" curve

improper integrals, convergence to a value & divergence

Be able to:

find the limit of a given power function, rational function or exponential function.

find the area under a given curve for $x \to \infty$.

evaluate an improper integral $\int_1^{\infty} f(x)\,dx$ via anti-derivative, integration by substitution, or integration by parts.

Review exercises from the text:

Chapter 9 Review of Fundamental Concepts, 10

Chapter 9 Supplementary Exercises, 47 – 54   (answers to odd-numbered problems are in the back)